

Activity-Based, Variable, Absorption, and Shared Services Costing Notes

Introduction

This document provides comprehensive notes on **Activity-Based Costing (ABC)**, **Variable Costing**, **Absorption Costing**, and **Shared Services Costing**, as relevant to the CMA (US) curriculum. These costing methods are critical for accurate cost allocation, financial reporting, and managerial decision-making. The notes correct formatting issues, enhance clarity, and include an example problem related to cost allocation in a business combination context.

Activity-Based Costing (ABC)

Overview

Activity-Based Costing (ABC) assigns costs to products or services based on the activities they require, using **cost drivers**—activities that cause costs to be incurred. ABC provides a more accurate allocation of overhead costs compared to traditional methods by linking costs to specific activities.

- **Activity:** An event, task, or unit of work with a specific purpose (e.g., machine setup, quality inspection).
- **Cost Driver:** The factor that drives the cost of an activity (e.g., number of setups, inspection hours).

Types of Activities

- **Value-Adding Activities:** Contribute to the product's value from the customer's perspective (e.g., assembling a product).
- **Non-Value-Adding Activities:** Necessary but do not directly enhance the product's value (e.g., administrative tasks).

Categories of Activities

1. **Unit-Level:** Performed for each unit produced (e.g., machining).
2. **Batch-Level:** Performed for each batch (e.g., machine setup).
3. **Product-Level:** Support specific products (e.g., product design).
4. **Facility-Level:** Support overall operations (e.g., factory rent).

Advantages of ABC

- Improves cost accuracy by linking costs to specific activities.
- Enhances decision-making for pricing, product mix, and process improvements.
- Identifies non-value-adding activities for cost reduction.

Disadvantages of ABC

- Complex and time-consuming to implement.
- Requires detailed data collection and analysis.
- May not be cost-effective for small organizations.

Example Problem (ABC vs. Traditional Costing)

Scenario: A company produces two products, A and B, with \$500,000 in total overhead costs. Under traditional costing, overhead is allocated based on 25,000 direct labor hours (\$20/hour). Under ABC, overhead is split into two activities: machine setups (\$200,000, driven by 400 setups) and inspections (\$300,000, driven by 600 inspections).

- **Traditional Costing:**
 - Product A: 15,000 labor hours × \$20 = \$300,000
 - Product B: 10,000 labor hours × \$20 = \$200,000
- **ABC Costing:**
 - Machine Setups: \$200,000 / 400 setups = \$500/setup
 - Product A: 250 setups × \$500 = \$125,000
 - Product B: 150 setups × \$500 = \$75,000
 - Inspections: \$300,000 / 600 inspections = \$500/inspection
 - Product A: 200 inspections × \$500 = \$100,000
 - Product B: 400 inspections × \$500 = \$200,000
 - Total ABC Allocation:
 - Product A: \$125,000 + \$100,000 = \$225,000
 - Product B: \$75,000 + \$200,000 = \$275,000

Analysis: ABC provides a more accurate allocation by reflecting the actual resource consumption, revealing that Product B consumes more inspection resources.

Variable vs. Absorption Costing

Overview

Variable Costing and **Absorption Costing** differ in their treatment of fixed manufacturing overhead and presentation of costs, impacting income statements and decision-making.

1. Treatment of Fixed Factory Overhead

- **Variable Costing:**

- Fixed manufacturing overhead is treated as a **period cost** and expensed immediately on the income statement.
- Only variable manufacturing costs (direct materials, direct labor, variable overhead) are included in product costs.

- **Absorption Costing:**

- Fixed manufacturing overhead is allocated to units produced and included in inventory on the balance sheet.
- Product costs include direct materials, direct labor, variable overhead, and fixed overhead.

Formula for Fixed Overhead Rate:

Fixed Overhead Rate = Budgeted Fixed Manufacturing Overhead / Budgeted Activity Level

2. Presentation

- **Absorption Costing Income Statement:**

- Sales Revenue
- - Cost of Goods Sold (includes variable and fixed manufacturing costs)
- = Gross Profit
- - Operating Expenses (nonmanufacturing costs)
- = Net Income

- **Variable Costing Income Statement:**

- Sales Revenue
- - Variable Manufacturing Costs
- = Contribution Margin
- - Fixed Costs (manufacturing and nonmanufacturing)
- - Operating Expenses
- = Net Income

Effect of Inventory Changes

- **Inventory Increase (Production > Sales):**
 - Absorption costing reports higher net income because fixed overhead is absorbed into inventory.
- **Inventory Decrease (Production < Sales):**

- Variable costing reports higher net income because fixed overhead is expensed immediately.

- **Formula for Income Difference:**

- Difference in Income = Fixed Overhead Cost per Unit × Change in Inventory Units

Comparison

- **Absorption Costing:** Required by US GAAP for external reporting, as it matches costs with revenues.
- **Variable Costing:** Preferred for internal decision-making, as fixed costs are irrelevant for short-term decisions (e.g., pricing, make-or-buy).

Example:

A company produces 10,000 units and sells 8,000 units. Fixed overhead is \$100,000, and the fixed overhead rate is \$10/unit. Variable costs are \$20/unit, and the selling price is \$50/unit.

- **Absorption Costing:**

- COGS: $8,000 \times (\$20 + \$10) = \$240,000$
- Net Income: $(8,000 \times \$50) - \$240,000 = \$160,000$
- Ending Inventory: $2,000 \times \$30 = \$60,000$

- **Variable Costing:**

- Variable COGS: $8,000 \times \$20 = \$160,000$
- Contribution Margin: $(8,000 \times \$50) - \$160,000 = \$240,000$
- Net Income: $\$240,000 - \$100,000 \text{ (fixed overhead)} = \$140,000$
- Difference: $\$10 \times 2,000 = \$20,000$ (absorption income higher due to inventory increase).

Shared Services Costing

Overview

Shared services costing involves allocating costs of service departments (e.g., maintenance, IT) to production or operating departments. This ensures accurate product costing and cost recovery.

Why It Matters

- **Short-Term:** Variable production costs must be covered to sustain operations.
- **Long-Term:** All costs (fixed and variable) must be recovered to ensure profitability.

Treatments of Service Costs

1. **Allocate to Production Departments:** Service costs are assigned to production departments based on usage or other allocation bases.
2. **Expense Immediately:** Service costs are treated as period costs and expensed as incurred.

Allocation Methods

- **Single-Rate Method:** Combines fixed and variable costs into a single rate for allocation.
 - Formula: Total Cost Pool = Fixed Costs + (Variable Cost per Unit × Budgeted Units)
- **Dual-Rate Method:** Separates fixed and variable costs, allocating each using different bases.
 - Variable Costs: Allocated based on actual usage (e.g., actual hours × budgeted variable cost rate).
 - Fixed Costs: Allocated based on budgeted costs and budgeted usage.

Example (EZYBREEZY Maintenance Department):

- **Scenario:** EZYBREEZY's Maintenance Department serves Manufacturing and Sales departments with a practical capacity of 5,000 hours. Budgeted fixed costs are \$247,500, and variable costs are \$25/hour. Manufacturing uses 3,400 hours, and Sales uses 1,100 hours.
- **Single-Rate Method:**
 - Total Cost Pool: $\$247,500 + (4,500 \text{ hours} \times \$25) = \$360,000$
 - Rate: $\$360,000 / 4,500 \text{ hours} = \$80/\text{hour}$
 - Allocation:
 - Manufacturing: $3,400 \times \$80 = \$272,000$
 - Sales: $1,100 \times \$80 = \$88,000$
- **Dual-Rate Method:**
 - Variable Costs: $\$25/\text{hour} \times \text{actual hours}$
 - Manufacturing: $3,400 \times \$25 = \$85,000$
 - Sales: $1,100 \times \$25 = \$27,500$
 - Fixed Costs: \$247,500 allocated based on budgeted hours (e.g., 75% Manufacturing, 25% Sales)
 - Manufacturing: $0.75 \times \$247,500 = \$185,625$
 - Sales: $0.25 \times \$247,500 = \$61,875$

- Total Allocation:
 - Manufacturing: $\$85,000 + \$185,625 = \$270,625$
 - Sales: $\$27,500 + \$61,875 = \$89,375$
- **Outsourcing Decision:** If an external provider offers maintenance for Manufacturing at \$60/hour, EZYBREEZY compares:
 - Internal Cost: \$270,625
 - External Cost: $3,400 \times \$60 = \$204,000$ (saves \$66,625).

Example Problem: Business Combination and ABC Costing

Scenario: A parent company acquires a subsidiary that manufactures two products, X and Y, using ABC. The subsidiary has a shared IT department with \$200,000 fixed costs and \$30/hour variable costs, serving Production (2,000 hours) and Sales (1,000 hours). Post-acquisition, the parent revalues the IT infrastructure, increasing fixed costs by 10%. Allocate costs using the dual-rate method and compare with traditional costing.

Solution:

1. **Adjusted Fixed Costs:**
 - New Fixed Costs: $\$200,000 \times 1.1 = \$220,000$
2. **Dual-Rate Allocation:**
 - Variable Costs:
 - Production: $2,000 \times \$30 = \$60,000$
 - Sales: $1,000 \times \$30 = \$30,000$
 - Fixed Costs (budgeted 67% Production, 33% Sales):
 - Production: $0.67 \times \$220,000 = \$147,400$
 - Sales: $0.33 \times \$220,000 = \$72,600$
 - Total Allocation:
 - Production: $\$60,000 + \$147,400 = \$207,400$
 - Sales: $\$30,000 + \$72,600 = \$102,600$
3. **Traditional Single-Rate Allocation:**
 - Total Cost: $\$220,000 + (3,000 \times \$30) = \$310,000$
 - Rate: $\$310,000 / 3,000 \text{ hours} = \$103.33/\text{hour}$
 - Allocation:

- Production: $2,000 \times \$103.33 = \$206,660$
- Sales: $1,000 \times \$103.33 = \$103,330$

4. **Analysis:** The dual-rate method better reflects actual usage, especially for variable costs, ensuring fair allocation post-acquisition. The parent must standardize ABC methods across subsidiaries for consistent consolidated reporting.

Summary

- **Activity-Based Costing:** Allocates costs based on activities and cost drivers, improving accuracy over traditional methods.
- **Variable vs. Absorption Costing:** Differ in fixed overhead treatment and income statement presentation, with absorption required for GAAP and variable better for decision-making.
- **Shared Services Costing:** Allocates service department costs using single-rate or dual-rate methods, critical for cost recovery and outsourcing decisions.
- **Business Combinations:** Require consistent costing methods across entities, with adjustments for fair value impacting cost allocations in consolidated financial statements.